Claims

What is claimed is:

1. A tunable antenna matching circuit comprising:

a ferro-electric tunable component configured to be coupled to an antenna;

a matching circuit comprising the ferro-electric tunable component;

a control line operably coupled to the ferro-electric component;

a control source electrically coupled to the control line, the control source configured to transmit a control signal on the control line;

wherein the ferro-electric component, responsive to the control signal, adjusts the impedance of the matching circuit.

2. The tunable antenna matching circuit of claim 1, wherein the ferro-electric tunable component comprises a ferro-electric tunable capacitor.

3. The tunable antenna matching circuit of claim 2, further comprising a substrate wherein the

capacitor is directly mechanically coupled to the substrate.

4. The tunable antenna matching circuit of claim 1, further comprising:

a first inductor coupled, at a first end of the first inductor, to ground and configured to be coupled to an antenna at a second end of the first inductor;

a second inductor coupled, at a first end of the second inductor, to the second end of the first inductor;

a first capacitor coupled, at a first end of the first capacitor, to a second end of the second inductor and to ground at a second end of the first capacitor;

a second capacitor coupled to the second end of the second inductor.

5. A wireless communication device comprising:

a battery;

a transceiver;

a user interface;

a housing encasing the battery and the transceiver and adapted to present the user interface external to the housing;

an antenna matching circuit, configured to be coupled to an antenna and comprising a ferro-electric tunable component;

a control signal generator for generating a control signal;

a control line coupled to the control signal generator and to the ferro-electric component;

a control source electrically coupled to the control line, the control source configured to transmit a control signal on the control line;

wherein the ferro-electric component, responsive to the control signal, adjusts the impedance of the matching circuit.

6. The wireless communication device of claim 5, wherein the ferro-electric tunable component comprises a ferro-electric tunable capacitor.

7. The wireless communication device of claim 6, further comprising a substrate wherein the capacitor is directly mechanically coupled to the substrate.

8. The wireless communication device of claim 5, further comprising:

a first inductor coupled, at a first end of the first inductor, to ground and configured to be coupled to an antenna at a second end of the first inductor;

a second inductor coupled, at a first end of the second inductor, to the second end of the first inductor;

a first capacitor coupled, at a first end of the first capacitor, to a second end of the second inductor and to ground at a second end of the first capacitor;

a second capacitor coupled to the second end of the second inductor.